

## **ABSTRACT**

New compositions and methods for treating patients suffering from Amyotrophic Lateral Sclerosis (ALS) and other metabolic and autoimmune disorders, which include glycopeptides such as N-acetyl-D-glucosaminyl( $\beta$ 1-4)-N-Acetyl-muramyl-L-alanyl-D-isoglutamine (GMDP) and peptide analog -L-alanyl-D-glutamic acid (GMDP-A) of at least 98% purity administered either alone, or in combination with a flavone such as luteolin and/or an isoflavone such as genistein, optionally in combination with a flavonol glycoside such as isoquercitrin or rutin. The high purity glycopeptides have a decreased amount immunogenic impurities and demonstrate a synergistic effect when combined with luteolin and/or genistein in presence of isoquercitrin.